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Actual And Perceived Sexual Behaviors In College Students

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Actual and Perceived Sexual Behaviors in College Students

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ABSTRACT

The purpose of this study was to compare college students' actual sexual behaviors and their perceptions of sexual behaviors among their peers. The analyses consisted of 65,036 participant's ages 18 to 24, with a mean age of 20.20 years (SD±1.55) who completed the American College Health Association's National College Health Assessment in 2008. The dependent variables were the normative gap of: *Number of Partners, Sexual Activity,* and *Condom Usage.* Three one-way ANOVAs with Bonferroni post hoc analyses were used to determine differences between the dependent variables and the following independent variables: age, sexual orientation, and living arrangement. ANOVAs were used to examine the dependent variables and the following independent variables: sex, race, and fraternity/sorority membership. The largest normative gaps across all three dependent variables were seen in: 18 year olds, female participants, minority participants, and those who were not members of fraternities/sororities. There were differences across the dependent variables in terms of sexual orientation with the largest normative gap on number of partners found among heterosexuals, for sexual activity the largest normative gap found among transgender, and for condom usage, the largest normative gap was found among gay and lesbian students. In terms of living arrangements, students living with parents had the largest normative gap on number of partners and sexual activity and students living in residence halls had the largest normative gap for condom usage. Results from this study suggest that each institution analyze sexual health behavior for their campus specifically in order to create programs appropriate for their student population.

DEDICATION

This is dedicated to my husband Antonio and our son Kaiden, my parents Gracie and Patrick, and my siblings Marcus and Miranda. I thank my family for always giving me support, providing me with motivation, pushing me beyond my limits, and showing me the path to righteousness and happiness.

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CHAPTER I

INTRODUCUTION

College students report engaging in risky sexual behavior or unsafe sex and these behaviors are increasing. Drug or alcohol use before or during sexual activity, failure to engage in safe sex communication, having sex with multiple partners, and inconsistent condom use during vaginal or anal intercourse are examples of risky sexual behaviors (Marcus, Fulton, & Turchik, 2011; Turchik & Garske, 2009). Individuals can reduce their risk of contracting a sexually transmitted disease (STD) by practicing safer sex. Research demonstrates that individual's perceptions of the behavioral norms in their social group affect contraceptive behaviors as well as safer sex behaviors (Sanderson & Yopyk, 2007).

Condom Use

Safer sex involves taking precautionary actions to reduce the risk during sexual activities. One risk reduction strategy includes consistent and correct condom use, which is a form of contraception (Avert, 2011). Contraception is the use of various hormonal and barrier methods to prevent pregnancy. Birth control pills are hormonal methods, condoms are barrier methods and both are commonly used among college students. Condoms are inexpensive, simple to use, and safe for both partners (Planned Parenthood Federation of America, 2012). In addition to preventing an unwanted pregnancy, consistent and correct condom use reduces the risk of STD transmission (CDC, 2011a).

Sexually Transmitted Diseases

STDs refer to more than 25 infectious organisms that are acquired primarily through sexual activity, including oral, anal, or vaginal contact. Specific goals of Healthy People 2020 are to promote healthy sexual behaviors, reduce the transmission of primary and secondary syphilis, reduce the proportion of adolescents and young adults with chlamydia, and to increase access to quality services to prevent STDs and their complications (Department of Health and Human Services, 2020).

National Data

Adolescents and young adults ages 15 to 24 years represent approximately 25% of the sexually experienced population, however they acquire nearly half of the 19 million new STD infections each year. Compared with older adults, sexually active adolescents ages 15 to 19 years and young adults ages 20 to 24 years are at higher risk of acquiring STDs (CDC, 2012). There are several STDs that must be reported to the CDC, three of which are: chlamydia, gonorrhea, and syphilis.

Chlamydia is the most commonly reported infectious disease in the United States and in 2010 over 1.3 million cases were reported. Untreated, chlamydia can cause severe health consequences for women, including pelvic inflammatory disease, ectopic pregnancy, and infertility. Reported chlamydia rates were higher for women than men; however, this difference could be attributed to women having a greater likelihood of detection due to regular screening. Specifically, the CDC recommends that all sexually active females 25 years old and younger get screening annually; however, no similar recommendation is put forth for men. In addition, women are frequently re-infected if their sexual partners are not treated (CDC, 2012). Rates of

reported chlamydia infection among the ages both male and females ages 15 to 24 years continue to increase. The CDC reports that from 2009 to 2010, chlamydia rates increased 2.8% and 7.5% for those ages 15 to 19 years and ages 20 to 24 years old respectively. The rate among women 15 to 19 years old was 3,378.2 cases per 100,000 females, which was a 1.9% increase from the 2009 rate of 3,314.7 cases per 100,000. Women ages 20 to 24 years old had the highest rate of chlamydia of 3,407.9 cases per 100,000 females compared with any other age or sex group. Chlamydia rates for women in this age group increased 6.9% from 2009 to 2010. Chlamydia rates for men ages 15 to 19 years increased 6% from 730.5 cases per 100,000 males in 2009 to 774.3 cases per 100,000 in 2010. In 2010, as in previous years, men ages 20 to 24 years had the highest rate of increase 8.8% with 1,187.0 cases per 100,000 males from 2009 to 2010 (CDC, 2011b).

Gonorrhea is a very common bacterial infection, with an estimated 700,000 newly infected individuals each year; however only about half of the cases are reported (CDC, 2011c). In 2010, there were 309,341 reported cases of gonorrhea and blacks accounted for 69% of these cases. The gonorrhea rates based on race were the highest in young black women aged 15 to 19 years of 2,032.4 per 100,000 and second highest among young black women aged 20 to 24 years was 1,997.6 per 100,000 (CDC, 2010b). In 2010, on the basis of sex, women ages 15 to 19 years had the highest rate of gonorrhea of 570.9 cases per 100,000 females, and women ages 20 to 24 years had the second highest rate of 560.7 cases per 100,000 females. Men ages 20 to 24 years had the third highest rate of gonorrhea with 421.0 cases per 100,000 males, and men ages 15 to 19 years old had the fourth highest rate of gonorrhea with 253.4 cases per 100,000 males (CDC, 2011b).

Between 2000 and 2008, rates of primary and secondary syphilis increased the most among 15 to 24 year old men and women. Syphilis cases in men increased from 3 cases per 100,000 population in 2001 to 7.9 cases per 100,000 in 2010 (CDC, Nov. 2010b). The syphilis rate among young adults ages 15 to 19 years old has increased since 2002, from 1.3 cases per 100,000 males to 5.6 cases per 100,000 in 2010. The rate among men ages 20 to 24 years old have also increased since 2002, from 5.2 cases per 100,000 males to 21.9 cases per 100,000 in 2010. Men ages 20 to 24 years old have had the highest rate of syphilis among men of any age group since 2008 (CDC, 2011b). Furthermore, syphilis among young black men has increased 134% over the past five years (CDC, 2012). When individual risk behaviors are combined with barriers to quality health information and STD prevention services, the risk of contracting an STD increases (CDC, 2011d).

The Surgeon General's Call to Action to Promote Sexual Health and Responsible Sexual Behavior, called for strategies that focused upon increasing awareness about sexual health, implementing and strengthening interventions, and expanding the research base relating to sexual health matters (Office of the Surgeon General, 2001). The Call to Action states there is a need to begin a mature, thoughtful, and respectful discussion nationwide about sexuality.

Statement of the Problem

College students engage in a variety of behaviors that put them at increased risk for a number of serious health problems (Sheldon, Carey, & Carey, 2008). Although many factors associated with risky sexual behaviors have been identified, little is known about young adults' perceptions of the sexual activities that constitute either risky or safe behaviors (Von Sadovszky, Keller, & McKinney, 2002).

Significance of the Study

The purpose of this study was to examine the normative gaps between college students' actual sexual behaviors and their perceptions of these behaviors among their peers. This study is a secondary data analysis of a cross-sectional survey of students who completed the American College Health Association's National College Health Assessment (ACHA-NCHA) in the spring of 2008. This study provides evidence that can aid in identifying specific subgroups of students who are more likely to engage in risky sexual behaviors. Determining the type and extent of sexual risk taking of college students and the perception of risk among their peers can help focus education and prevention efforts for particular groups. Improved prevention and intervention programs can be tailored to specific populations to help educate students about risky behaviors and to decrease the number of adverse outcomes.

CHAPTER II

REVIEW OF LITERATURE

College students engage in a variety of behaviors that put them at increased risk for a number of serious health problems (Sheldon, Carey, & Carey, 2008). Although many factors associated with risky sexual behaviors have been identified, little is known about young adults' perceptions of the sexual activities that constitute either risky or safe behaviors (Von Sadovszky, et al., 2002). This literature review focuses on college students' sexual behavior, condom usage, perception of STD risks, and student's perception of peers' sexual behavior. The literature is separated into the following three sections: sexual risk behavior, perceptions, and the ACHA-NCHA.

When determining the type of literature to include in this review, the main purpose was to provide a systematic synthesis of the motives held by college students when participating in risky sexual behaviors. It was also important to review the literature on the perception of sexual behavior of peers. It was important to consider various demographic and college-specific factors that may play a role including: age, sexual orientation, living arrangements, sex, race, and fraternity/sorority membership as the prevailing factors that could be associated with safer sex in college students.

Sexual Risk Behaviors

Sexual risk behaviors refer to behaviors that can produce an adverse health outcome such as an unplanned pregnancy or contracting an STD (Marcus, et al., 2011). This section of the literature will provide examples of studies that assess risky sexual behaviors, factors that contribute to risky sexual behaviors, and condom usage and condom usage knowledge among college students.

Roberts and Kennedy (2006) examined previous research and for contributing factors that lead to risk taking sexual behavior among young multiethnic college women (YMCW). Previous research found that vulnerability behaviors may be one of the most important variables in predicting condom use and sexual risk behavior among YMCW. Vulnerability behaviors include the lack of control over sexual encounters, low perceived risk, and substance use. Evidence showed that post adolescent development and behaviors may be some of the most important variables in predicting condom use and sexual risk among YMCW. A lack of consistent condom use was one of the most significant factors contributing to the rise in STD/HIV infection in this population. In this study, 100 YMCW were recruited from a state university in southern California. Participants were 18-24 with a mean age of 20.2 years, 41% were White and 30% were Hispanic. The participants completed ten questionnaires that assessed: perception of control over a sexual encounter, perception of sexual risk, perceived sexual assertiveness, condom use intention, actual condom use, partner resistance to condom use, STD history, sexual risk behaviors, and parental financial and emotional support. Results showed that women reported assertiveness and high levels of control during their sexual encounters, more than half of the women had unprotected sex within the last three months. While women felt confident in their ability to ask their partner to use a condom, however over half (52%) did not

refuse to have sex if their partner did not want to use a condom. Additionally, one third of women had not used a condom the last time they had sex. However, 73% said they would refuse sex if future partners did not want to use them. These findings indicate a gap between belief about their assertiveness and confidence with actual reported safer sex behaviors. Many YMCW reported high overall intentions to use condoms however, many reported negative attitudes concerning condoms (61%) and believed condom use for their partners diminished their sexual pleasure (62%), which may be key factors in the lack of condom use. Condom use intention had a strong positive relationship with condom use and 91% of women asked their partner to use a condom. Women experienced more partner resistance to condom use with their regular partners. Consistent condom use was reported as 36% for YMCW. Intentions that focus on addressing resistance despite sex and cultural forces are paramount in risk reduction strategies. The authors suggested that prevention strategies should focus on counseling women about their current and actual risk for STDs. YMCW need a range of information and services regarding the choices and decisions they make to ensure safer sex, as well as interventions that are consistent with their cultural values and beliefs.

Crosby, Sanders, Yarber, Graham, and Dodge (2002) assessed and compared condom use errors and problems among 158 university men. Failure to use condoms correctly could compromise efficacy and cause breakage and slippage. College men 18 years and older completed a paper and pencil questionnaire that assessed the number of sexual partners and frequency of condom use in the previous three months. The average age of participants was 20.2 years, 90% were white, and 6% were black. The two most common technical errors found were failing to check a condom for visible damage (74%) and not checking the expiration date (61%). Three widely understudied condom use errors were: putting condoms on after sex starts, using

the same condom when switching from oral to anal, or anal to vaginal, and having an erection problem associated with condom use. Three in five participants reported a lack of communication with a partner about condoms before a sexual encounter. The findings suggest the need for more instruction on proper condom use and an intensive focus on communication and planning for availability of condoms prior to a sexual encounter. The findings also suggest that measures of correct condom use should be assessed in studies that evaluate condom efficacy.

Crosby, Sanders, Yarber, and Graham (2003) assessed and compared condom use errors and problems among university males and females. The participants were 203 females and 169 males, 88% identified themselves as white, and 85% had previously received some form of instruction about condom use. The average age of participants was 19.5 years. A self-administered questionnaire assessed 15 typical condom use errors and problems that could be observed or experienced, with a three-month recall period. Some of the most commonly reported were: 44% of participants stated no condom was available when needed, 38% used a condom after sex had begun, and 11% stated that they opened condoms with sharp objects. Less common problems reported were: erection problems during condom application (15%), condoms slipping off during sex (15%), and condom breakage (7%). The findings supported the idea that prevention messages should emphasize the correct use of condoms, and the importance of consistent condom use for STD and pregnancy prevention. This study provided initial evidence supporting comprehensive assessment of condom use errors and problems in any study designed to test condom effectiveness. However, the authors suggested condom effectiveness may be underestimated due to incorrect condom usage.

Crosby, Yarber, Sanders, and Graham (2005) examined consistent and correct use of condoms as an effective strategy to prevent STD transmission and pregnancy among college

students. Many studies have analyzed condom use errors and problems, but few have addressed incorrect application of condoms, incomplete use of condoms, and erection problems associated with condom use. An important factor that may not have been addressed sufficiently in previous studies is condom discomfort, which may play an important role when couples are deciding whether or not to use condoms. Two hundred and six male and female university students who report using condoms responded to open-ended questions regarding recent discomfort experienced when using male condoms during sex. A paper and pencil questionnaire was completed that assessed social-demographic variables, sexual behavior within the last three months, and a broad range of potential condom use errors, problems and discomfort. Participants were ages 18-25 years with a mean age of 20.3 years. This study found associations between reported discomfort and personal motivation to use condoms and between discomfort and incomplete use of condoms. Approximately 29% of men and 33% of women experienced problems with the fit and feel of condoms. Condoms causing vaginal irritation (43%) and male partners' complaint of condoms fitting too tightly (27%) were the two most commonly cited problems by female participants. Condoms fitting tightly and vaginal dryness may foster breakage due to the added stress on the condom. Future research may benefit from determining how the loss of sensation may factor into students' decisions to not use condoms. This study also suggested that male students who had experienced discomfort with condoms were less motivated to use them compared to male students who have not had discomfort. Because discomfort was also associated with incomplete use and less motivation to use condoms, education and counseling programs may help to reduce typical condom-user failure rates.

Sanderson and Yopyk (2007) examined the effectiveness of two distinct condom promotion videotapes on condom use self-efficacy, intentions, and behavior. The perception of

particular social norms regarding condom use is an important predictor of individuals' own behavior. Individuals' perceptions of their potential sexual partners' attitudes toward safer sex also have a similar effect on behavior. Participants were recruited to one of two HIV prevention video conditions or a no treatment group. The videos attempted to change individuals' perceptions of their potential sexual partners' attitudes toward condoms. Introducing condom use may imply either that one believes one's partner has a disease or that one suspects the partner engaged in various risk-related behaviors. First, researchers examined if an all-female peer group or an all-male peer group would be more effective than a control group at increasing condom use self-efficacy, intentions, and behavior. Second, the researchers examined the extent to which condom promotions videotapes that featured opposite-sex speakers were associated with greater self-efficacy for condom use, stronger intentions toward condoms use and higher rates of reported condom use. This study consisted of 220 college students with a mean age of 19.6 years; there were 109 women and 111 men. Eighty-five percent of participants were white and 8% were black. Participants were randomly assigned to one of two HIV prevention video conditions or were in the no treatment control group. Each video was 30 minutes long with three distinct sections: introductory, a core section, and a concluding section. Each section of the video was approximately 10 minutes in duration. The introduction section provided information regarding, HIV rates in college students, low rates of condom use, and the average number of sexual partners of college students. The differences in the videos were in the core section, which consisted of either an all-male group or an all-female group discussing condom use. The conclusion of each video showed a demonstration of correct condom use, a couple attempting to use a condom when intoxicated, and statistics on students' positive reaction to suggestions of condom use. Participants completed a pretest questionnaire prior to watching the video and

completed a posttest questionnaire after watching the video. Participants' posttest assessment measured condom use self-efficacy, safer sex intention, and sexual behavior. At posttest, participants who watched the all-male group video had higher self-efficacy for suggesting condom use and participants who watched the all-female group video showed greater intention to use condoms regardless of their sex. Four month follow up analysis showed the participants in the control group were significantly less confident in their ability to refuse to have sex without a condom and less likely to intend to use condoms in the future than those in either of the two video conditions. Men and women benefited, in terms of engaging in consistent condom use in the last 3 months, from the female speaker video. The authors speculate that for men, knowing women were concerned may prompt them to use condoms, reducing the likelihood of rejection from a sexual partner. For women, having other women speak about condoms on the video may have given them an opportunity to learn strategies for suggesting their use.

LaBrie, Pedersen, Thompson, and Earleywine (2008) examined if the construct of decisional balance could be used alone or in conjunction with the Motivational Interviewing (MI) therapeutic style to promote safer sex practices during one brief meeting. In a review of safer-sex interventions, cognitive-behavioral interventions have been found to be effective, but these interventions assume that participants were ready for change and wanted to change their behavior. Motivational enhancement interventions, however, may be successful with populations who do not believe they have a problem or do not feel a need to change their behavior. One strategy for changing behavior is the use of a decisional balance. MI helps to clarify competing behaviors and encourages the person to consider change. This study utilized a specific strategy of MI and the decisional balance to promote safer sex. Forty-one heterosexual men were randomly assigned to the safer sex intervention, and 47 men were randomly assigned to receive an alcohol-

targeted intervention. Each participant listed the positive and negative aspects of their current behavior. This article exclusively discussed the intervention components and results from participants in the safer sex intervention. The participants had the mean age of 20.56 years and 76% were white. In the pre-intervention, participants completed the demographic information, 12 item Readiness to Change Questionnaire (RTCQ) for alcohol use, RTCQ for condom use, and two change rulers that measured motivation or readiness to change. Then participants completed the Timeline Followback Interview: Sexual Behavior and Substance Use (TLFB-SS), which is an assessment tool for both drinking and sexual behavior. Finally, the facilitator also engaged participants in a 5-10 minute MI-styled conversation regarding the reasons for using a condom in every sexual event. All participants completed the pre-intervention assessment, decisional balance intervention, and post-intervention assessment, while 37 participants completed the 30-day follow up behavioral log with measures of intention and motivation. For behavioral change measures, there were only two time points, pre-intervention and 30-day follow up. Condom usage increased from pre-intervention (41%) to follow up (70%). Participants also increased condom use with new and casual partners from 19% to 81% and 13% to 44% with regular partners. A longer follow up could provide more information about the duration of the decisional balance's efficacy. Increased condom use posttest also displayed some evidence for effectiveness for safe sex targeted decisional balance intervention. It was also suggested it would be useful to focus on individual student's positive reasons for initiating change.

Summary of sexual risk behaviors

The sexual risky behavior section highlighted students overall lack of knowledge of condom usage, planning sexual encounters, and self-efficacy when communicating with a partner about sexual encounters. Condom usage is one of the best ways to reduce the

transmission of STDs, yet several studies find low condom usage rates. Some common misuse of condom behaviors included: failure to check for an expiration date, putting a condom on after sex had already begun, and using the same condom when switching between various types of sexual activity. Furthermore, college students overestimated peers' sexual activity, overestimated the number of sexual partners and underestimated condom use behavior.

Perceptions and Misperceptions

Normative perceptions of sexual behavior may be an important influence in college students' decisions to engage in risky sexual behavior (Lewis, Lee, Patrick, and Fossos, 2007). Misperception or a normative gap is the discrepancy between actual behaviors and what individuals perceive the norm for such behaviors to be (Berkowitz, 2004). This section of the literature review presents diverse ways to look at an individuals' perception of their peers' behavior. Some views expressed in this section utilize the Health Belief Model, social norms, false consensus, and pluralistic ignorance.

Lambert, Kahn, and Apple (2003) focused their research on hooking up and pluralistic ignorance. Pluralistic ignorance, a concept coined by Floyd Allport and Daniel Katz in 1931, exists when within a group of individuals, each person believes his or her private attitudes, beliefs, or judgments are different from the norm displayed by the public behavior of others. Hooking up was defined as a sexual encounter between two people who may or may not know each other well, and who usually are not seriously dating. This study examined the extent to which pluralistic ignorance might be related to college students' comfort level with sexual behaviors involving hooking up. The study consisted of 172 women and 152 male undergraduates. First, men and women reported less comfort with their perceived norm of

hooking up than they believed was experienced by their same-sex peers, with men showing a greater difference between self and peer-ratings than women. Second, both men and women believed members of the other gender experienced greater comfort with hooking-up behaviors than members of the other gender actually reported. Third, men were less comfortable with engaging in hooking-up behaviors than women believed them to be. Results found that 77% of women and 84% of men indicated that they had ever hooked up in their lives. Both genders reported less comfort with their perceived norm of hooking up than they believed was experienced by their same sex peers. Additionally, both men and women believed members of the opposite sex were more comfortable with hooking up behaviors than the other sex actually reported. Also, men expressed greater comfort than women regarding hooking up behaviors. The authors suggest that some men may pressure women to engage in sexual behaviors, and some women may engage in these behaviors or only slightly resist because they believe they are alone in feeling discomfort or uncertainty about this behavior. The authors were able to extend the knowledge about pluralistic ignorance to other sexual behaviors. The authors recommend an awareness campaign that reveals the existence of pluralistic ignorance about sexual behaviors among college students.

Lewis, Lee, Patrick, and Fossos (2007) examined gender-specific normative perceptions of peers' risky sexual behavior and alcohol-related risky sexual behavior and their relationship with one's own risky sexual behavior and alcohol-related risky sexual behavior. According to false consensus, those who engage in risky sexual behavior may assume that their peers engage in risky sexual behavior similarly to themselves. Pluralistic ignorance occurs when individuals believe that their private attitudes or behaviors are different from the attitudes or behaviors of others, even though they behave the same way as others. Perceptions of peer behaviors have

been associated with risk behaviors, such as sexual behavior and alcohol consumption. Alcohol usage decreases the likelihood of condom usage. This study consisted of 687 students who were participants in an ongoing longitudinal study examining a web-based marijuana intervention during the transition to college. Participants were 18-24 years old with an average of 18.53 years. Fifty seven percent of participants were women, 58% were white, and 24% were Asian Pacific. Participants completed web-based surveys assessing sexual behavior, sexual behavior of peers, marijuana use, and alcohol consumption at 3, 6, and 9 months post baseline. Women and men perceived their same-sex peers to have more sexual partners and greater frequency of casual sexual intercourse and alcohol-related risk sexual behavior. However, opposite-sex norms were not associated with risky sexual behavior or alcohol-related risky sexual behavior. Normative misperceptions for sexual behavior were consistent with both false consensus and pluralistic ignorance. Compared to their male counterparts, women displayed greater normative misperceptions for male peers in terms of multiple sexual partners and frequency of casual sexual intercourse. Results were consistent with research examining perceived drinking norms, which suggests that perceived risky sexual behavior norms may influence risky sexual behavior in the same manner that perceived drinking norms influence drinking behavior. Compared to their male counterparts, women displayed greater normative misperceptions for male peers in terms of multiple sexual partners and frequency of casual sexual intercourse. This study's findings were consistent with previous research which has shown that college students perceived that both men and women engage in more sexual and alcohol behaviors than they actually did.

Martens et al. (2006) focused their attention on the theory underlying the social norms approach, which is based on the premise that individuals generally overestimate the frequency with which their peers engage in unhealthy behaviors and that these misperceptions have a casual

effect on individual behaviors. The purpose of this study was to assess the relationship between peer norms and individual alcohol use, drug use, and sexual behavior. The author hypothesized that, when individuals perceive that a certain behavior is more frequent or typical than it is in reality they are more likely to engage in such behavior. Researchers emphasized the influence of misperceptions of social norms on actual behaviors in two ways: 1) studies consistently document a relationship between individual alcohol consumption and perceived norms associated with greater personal consumption of alcohol, and 2) studies of individual interventions with a social norms component and a broader social norms campaign generally find reductions in alcohol consumptions over time, although this finding is not universal. A total of 833 university students completed the National College Health Assessment (NCHA) which has 58 content areas assessing health, risk and protective behavior, consequences of such behavior, and perceptions of students. Study participants were 58% women, 76% were white and the median age was 20 years. Researchers examined in the last 30 days: frequency of drug use, frequency of substance abuse, perceived substance abuse of peers, and perceived frequency of drug abuse in peers. Researchers examined in the last 12 months: number of sexual partners and the perceived number of sexual partners of peers. Findings were consistent with prior research that found, in general, college students overestimated peer norms for alcohol use, drug use and sexual behavior, and that a relationship existed between personal behaviors and perceived normative behaviors. The authors concluded that the results provided an important contribution to the social norms literature by extending analysis of the level of normative misperceptions and comparisons between actual and perceived normative behavior to sexual behaviors.

Von Sadovszky, et al., (2002) examined college students' understanding of safer sexual encounters, including expectation of sexual activities and planning for sexual encounters. As part

of a larger study examining contextual factors in sexual encounters, an exploratory study was conducted to identify frequency of reported sexual activities and perception of their last or most memorable sexual encounter. There were 84 participants who were 18-20 years old with a mean age of 18.6 years. The participants were all heterosexual, 67% were women, and 95% were Caucasian. Their actual sexual activities were assessed using the Approximations to Risky Sexual Intercourse (ASRI) instrument. This tool was developed to assess sexual activities that lead to vaginal intercourse. Prior to completing the ASRI, participants listened to a 15 minute audiotape that gave recall instructions for their last or most memorable sexual encounter Participants were divided into a risky or safe group depending on their responses to the ASRI. Participants were placed in the risky group if they reported having anal, oral, or vaginal sex without a condom at their last sexual encounter. There were no significant differences between the two groups when questioned if planning an encounter made it safer. The majority of participants in the risky group (87%) had oral sex without a condom and 38% had vaginal sex without a condom. Over 68% of participants, who classified their encounters as safer sex, actually had risky sexual encounters. Researchers noted three key implications of their findings. First, more education is needed for young people to understand and react when a sexual behavior escalates from one level to the next, such as touching through clothes to touching breasts under clothes. Second, the authors stated that more emphasis needs be placed on planning sexual encounters. If students have more time to plan for sexual encounters, safer behavior will likely result. Last, the primary reason for thinking that a sexual encounter was safe or risky was based on using a condom to prevent pregnancy. Future research should examine the planning of sexual encounters and identifying key variables that correlate with safer sex decision-making and key

variables that interfere in this process. The authors also suggested having more diverse participants in future studies as the majority of the sample was white, heterosexual, and female.

Matibag and Geisinger (2009) used the Health Belief Model (HBM) to assess college students' rationales for sexual risk taking when hooking up, during which condoms or some form of protection against STIs and pregnancy are needed but not used. The five constructs of HBM used in this study include: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy. This qualitative study was based on semi-structured interviews with 71 college students about their hooking-up experiences, including 39 women and 32 men. Participants were ages 18 to 24 with a mean age of 19.5 years. Part 1 of the interview assessed the students' perceptions of sex and dating norms on campus and perceptions of peer and friends beliefs about the pros, cons, and acceptability of hooking up. Part 2 of the interview assessed activities that occurred during students' most recent hookup. Part 3 assessed their evaluations of their hooking up experiences. Part 4 assessed students' perception of sexual risk taking during hooking-up, with respect to STIs. Results suggested that students' perceptions of their self-efficacy to use protection against STIs varied across different situational contexts. Students responded that the worst perceived severity was contracting an STI. With respect to perceived benefits, students knew that using condoms would protect them for STIs, but felt if they brought up using condoms they would lose the opportunity to have sex. Perceived barriers in this article referred to the cost of implementing preventative behaviors. Students felt condoms would protect them from STIs; however, they felt if they insisted upon using condoms then they would lose the opportunity to have sex or experience a loss of pleasure. Many students felt a lack of self-efficacy for discussing condom use with partners, a lack of control over the level of intimacy, and felt difficulty being prepared to have sex. The authors recommended the

development of mandatory and nationwide sexual risk-prevention programs that provide incoming college students with accurate information about STIs. It was also recommended that there should be more accessibility of condoms for students, in places such as bathrooms and residence halls, to help improve their self efficacy.

Summary of Perceptions

Study findings summarized in this section highlight the roles of misperceptions and lack of self-efficacy in influencing sexual decision making among college students. Some results presented in this section of the literature are: variation of self-efficacy to engage in safer sex depending on the sexual situation, consequences of sexual communication (e.g., students felt if they initiated a conversation about condom use, they would lose the opportunity to have sex), and students overestimation of peer sexual behavior (perceptions of risky sexual behavior were higher than actual behaviors). Presenting correct information about peer group norms in a believable fashion is hypothesized to reduce perceived peer pressure and increase the likelihood that individuals will express preexisting attitudes and beliefs that are health promoting (Berkowitz, 2004).

American College of Health Association's National College Health Assessment

The ACHA-National College Health Assessment (NCHA) is a nationally representative self-administered research survey that can assist in collecting precise data about college students' health habits, behaviors, and perceptions. The ACHA-NCHA has been utilized nationally since spring 2000 to track trends affecting academic performance. This section of the literature review will discuss studies that have utilized the ACHA-NCHA in assessing college students' sexual risk behaviors.

Adams and Rust (2006) assessed differences in norms for sexual behavior using social norms theory, which asserts that behavior is influenced by their perception of reality. Normative gap is considered the foundation of social norms theory and it is the difference between what is perceived and what is actual. This study served three purposes: 1) to determine the extent of the normative gap between actual and perceived sexual behavior, 2) to determine which demographic factors are associated with the largest absolute differences in perceived and actual behavior, and 3) to determine which demographic factors are associated with larger relative normative gaps norms. This study was a secondary analysis of cross-sectional data collected from the ACHA-NCHA from the spring 2002 and 2003 semester completed by college students. The sample included 20,869 male and female college students ages 18-24 years with a mean age of 19.96 years. The participant population was 62% female, 76% white, and 96% heterosexual .The three dependent variables were: perceived versus actual number of sexual partners in the last 12 months, perceived versus actual sexual activity of peers in the past 30 days, and perceived versus actual condom usage in the past 30 days. The frequency analysis indicated that the perceived norms for all three dependent variables were larger than the actual behavior for the majority of the sample. Considering number of partners, larger normative gaps were seen in black, Hispanic, and Asian females relative to their white counterparts. Regarding sexual activity, larger normative gaps were seen between black and Asian females relative to their white counterparts. Regarding condom usage, larger normative gaps were found in Asian relative to their black, white and Hispanic counterparts. Larger normative gaps were also seen in both genders in freshmen versus all other classes. Compared to heterosexual students, bisexual and gay students were more likely to report normative gaps. This study indicated that college students had large absolute and normative gaps between actual and perceived sexual behavior.

Trieu, Bratton, and Marshak (2011) analyzed secondary data on the sexual and reproductive health behaviors of community college students in California. The researchers examined the following: socioeconomic characteristics associated with sexual behavior and choice of birth control, the prevalence of unintentional pregnancy and STDs, association between academic standing and condoms use, and predictors of HIV testing and condom use during last intercourse. Twelve community colleges who were members of the Health Services Association of California Community Colleges (HSACC), self-selected to participate in the ACHA-NCHA. The HSACC which is a professional organization for health centers and directors formed the Consortium for this study. The consortium administered the ACHA-NCHA to its students from February 2007 to April 2007. A total of 7,898 students completed the survey and 4,487 were used as a sub-sample in this study. The participants included 2,435 females and 2,052 males ages 18-24 years with an average age of 20 years. Fifty four percent of participants were women, and 52% were white. Regarding sexual behavior, 47% of students reported having oral and vaginal sex within the last 30 days and 55% of participants reported having 1 or 2 sexual partners within the last year. There was no association between academic standing and condom use during their last vaginal intercourse. Condoms were the most commonly used form of birth control (49%) followed by hormonal contraceptive (46%). Only one-third of students (32%) reported a history of being tested for HIV. Reporting HIV testing history was more likely in female (37%) and married students (60%). Within the last 30 days, the prevalence of oral and vaginal sex was 47% and 52% however, only 6% of the consortium used condoms at their last sexual encounter. Students who failed to use protection during sex reported higher HIV testing rates than those who used condoms. This study also compared the consortium data to the ACHA-NCHA reference group of all participants that completed the ACHA-NCHA Spring 2007 semester

nationwide. The consortium sample reported more risky sexual behavior such as: 30% reported having two or more partners compared in the last 12 months to 25% in the reference group, higher frequencies of unintended pregnancies (5% versus 2%), and were 1.5 times more likely to use emergency contraception. The researchers suggested that it may be helpful for community college campuses to offer more sophisticated health promotion programs and more awareness and delivery of health behavior interventions.

Buhi, Marhefka, and Hoban (2010) examined the sexual health disparities between black and white college students. The researchers hypothesized that black students would display more risky sexual behavior and more negative sexual outcomes, such as an unintended pregnancy or contracting an STD. The researchers used the ACHA-NCHA data from 44,165 students who completed the spring 2007 semester assessment. The participants were ages 18-24 with an average age of 20 years. Sixty four percent of the participants were women, 94% were white, and 45% lived on campus. During their last vaginal intercourse, 58% of students reported using a condom overall. However, condom usage in the last 30 days for oral and anal sex was only 4% and 31%, respectively. Black students reported higher condom use in all sexual behaviors and in the last 30 days. The most commonly reported form of contraceptive use was hormonal contraceptive pills (63%) for students with vaginal sex experience. The researchers suggested more theory based interventions for black and white students, and to have the interventions tailored to specific genders and races in all sexual health areas.

Eberhardt, Rice, and Smith (2003) examined the differences between Greek and non-Greek students at a small California community college on academic integrity, alcohol abuse, and risky sexual behavior. Greek students are defined as those who are members of a sorority or fraternity. In previous research, alcohol abuse and unsafe sexual behaviors have been issues that

arise within the Greek student population. The ACHA-NCHA was administered to 247 volunteers. The participants consisted of 109 Greeks, 138 non Greeks, 93 males, 154 females, 211 whites, 29 blacks, and 7 Asian students. In reference to alcohol misuse, Greeks were significantly more likely to drink within the last month and they were more likely to have more beverages when using alcohol their non-Greek counterparts. Greeks were also more likely to have forgotten where they were after drinking, hurt themselves, and report drinking and driving. Compared to Greek women, Greek men were significantly more likely to drink in the past 30 days, drink and drive, forget their location, and have unprotected sex after drinking in the last school year. Greeks were significantly more likely than non-Greeks to have unprotected sex after drinking. Greeks and non-Greeks had similar reports of neglecting to use condoms during vaginal sex. Greeks in this study reported more frequent and greater quantity of alcohol use, and then participating in risky behaviors or experiencing negative consequences from their drinking more often than non-Greek students. Researchers indicated that future research endeavors into Greek life and other issues on college campuses may need to consider potential differences between results from large campuses and small campuses.

Lindley, Barnett, Brandt, Hardin, and Burcin (2008) examined STD prevalence and risk factors among sexually active female college students of different sexual orientations. The researchers hypothesized that lesbian women would be at a greater risk of contracting an STD because they are more likely to use drugs and alcohol and more likely to engage in risky sexual behavior without using condoms and barriers. The participants completed the ACHA-NCHA in the spring 2006 semester. The original sample of students was 94,806, of which 29,952 females were sexually active and between the ages of 18 and 24 years. The study sample was primarily white (78%), 42% were single, and 54% were in a committed dating relationship or engaged.

Ninety-four percent of respondents described identified as heterosexual, 3% identified as bisexual, and 1% identified as lesbians. In reference lifetime sexual partners to behavioral, 94% of students had ever participated in oral sex, 91% ever had vaginal sex, and 23% ever had anal sex. Bisexual students were more likely to have ever engaged in anal intercourse than heterosexual, lesbian, and those unsure of their sexual orientation. Fifty-three percent of students did not use a condom with their most recent vaginal sex encounter. Bisexual students and those who described themselves as unsure of their sexuality reported more sexual partners than their heterosexual and lesbian counterparts in the last year. Lesbians and students that were unsure of their sexuality were significantly less likely to binge drink the last time they partied than heterosexuals and bisexuals. Bisexual students were more likely to contract a STD and lesbians were the least likely. Bisexual students and students unsure of their sexuality were at a higher risk for substance abuse. Lesbians were less likely to report contracting an STD, however they were also less likely to get a check-up. The authors suggested that when assessing STD risk in sexually active female college students, it is important to focus on their sexual- risk taking and STD risk by sexual orientation. Additionally, sexual health programs on college campuses should focus on STD risks associated with alcohol use, having multiple sex partners, and lack of condom use, regardless of student's sexual orientation. A notable limitation in this research was that the sample size of lesbians, bisexuals, and students unsure of their sexuality was small.

Summary of ACHA-NCHA

The preceding ACHA-NCHA section shows the many ways to utilize the survey. This section allowed the perceptions, risky behaviors, theory, and interventions to intertwine with the NCHA and showcase how helpful this survey can be to specific populations. The literature in this particular section provides similar study results as in the two previous sections. Some key

results found in this particular section include the following: minorities, women, and lesbians/ gay students had the greatest disparities of sexual health behaviors and Greek affiliated students were more likely to report higher rates of unprotected sex than their non-Greek counterparts.

Summary of chapter

The literature review demonstrates many of the sexual-health related behaviors and consequences experienced by college students. There is a general lack of self-efficacy about the following: condom usage, communicating with one's partner about using condoms, and lack of preparedness for sexual encounters. Peer engagement in risky sexual behaviors was commonly overestimated by college students. This literature review displays the multitude of factors that contribute to risky sexual behaviors among the college population. While this literature review does not provide conclusive answers to explain reasons that students engage in risky sexual behaviors, it is important to have further exploration into the subjects.

CHAPTER III

METHODOLOGY

This proposed research study will examine college students' actual sexual behaviors and their perceptions of these behaviors among their peers. This research utilized secondary data from the American College Health Association National College Health Assessment (ACHA-NCHA) collected in the spring 2008 semester.

ACHA-NCHA History

Every spring and fall semester for the last 12 years, the ACHA has conducted the NCHA for participating colleges and universities across the country. The ACHA-NCHA assesses factors that can affect the academic performance of college students such as alcohol use, mental health status, and sexual health behaviors. The ACHA-NCHA was developed and pilot tested by an interdisciplinary team of college health professionals from 1998 to 1999. In 1998, nine campuses and 2,007 participants completed the pilot study, in the spring of 1999 ten campuses and 3,531 participants completed the pilot survey, and in the fall of 1999 seven campuses and 3,649 participants completed the pilot study. When the ACHA-NCHA went "live" in 2000, 35 campuses and 20,164 students completed it and in spring 2008 the survey had 80,121 participants across 106 institutions. Some key concerns that arise about new survey tools including the ACHA-NCHA are generalizability, validity, and reliability (ACHA-NCHA, 2009).

Generalizability, Validity, and Reliability of the ACHA-NCHA

Generalizability refers to research findings from a sample population being broadened to include the population at large (Myers, 2000). Validity refers to the degree to which a study accurately reflects or captures what the researchers set out to measure and reliability is the ability of a test to give the same results on repeated testing (Glanz, Rimer, & Viswanath, 2008).

The findings from the ACHA-NCHA cannot be generalizable to all college students in the United States because participants self select to participate in the assessment. However, the generalizability of the three ACHA-NCHA pilots 1998, spring 1999 and fall 1999 and the spring 2000 database have been evaluated for validity and reliability by comparing the results to other surveys of the same population, that have been sampled to represent all students in the United States (American College Health Association- National College Health Assessment, 2012). The national surveys that were used for evaluation of validity and reliability were: National College Health Risk Behavior Survey, Harvard School of Public Health 1999 College Alcohol Study (CAS), United States Department of Justice: The National College Women Sexual Victimization Study 2000 (NCWSV), ACHA-NCHA pilots from 1998, Spring and Fall 1999, and Spring 2000. Validity and reliability analyses included: comparing relevant percentages with nationally representative databases, performing item reliability analyses comparing overlapping items with a nationally representative database, conducting construct validity analyses comparing ACHA-NCHA results with a nationally representative database, and conducting measurement validity comparing results of the ACHA-NCHA with a nationally representative database. The series of comparisons and statistical analyses, in a sense, used triangulation, in that information from various resources were independently used to achieve the goal of demonstrating the reliability and validity of the ACHA-NCHA, and thus its utilization and its ability to represent the

population of students. The analyses employed different national databases, covered different approaches, and utilized different statistical procedures to accomplish the evaluation (ACHA-NCHA, 2012). Even with all these analyses, the ACHA-NCHA cannot be said to be generalizable to the entire population, so it is referred to as a Reference Group.

Data Source and Eligibility Criteria

This research study analyzes the spring 2008 ACHA-NCHA data, which consisted of 80,121 participants across 106 institutions (ACHA-NCHA, 2012). Past literature typically refers to typical college age as being 18 to 24 years old. Participants who are under the age of 18, or over the age of 24, married or separated will not be included in the present analyses.

Measures

Independent Variables

The independent variables in these analyses included age, sex, race, living arrangement, sexual orientation, and fraternity/sorority membership.

Age

Participants were asked: "How old are you?" and asked to fill in their current age. The current study excludes individuals younger than 18 and older than 24 and the variable will be operating as a categorical variable.

Sex

Participants were asked: "What is your gender?" Participants were able to respond male or female. Those who failed to respond were excluded and those who responded both male and female were included. For the purposes of this study, gender is referred to as sex and categorized as male or female.

Race

Participants were asked: "How do you describe yourself?" with the following response options: white-not Hispanic, Middle Eastern, black-not Hispanic, Hispanic or Latino, Asian or Pacific Islander, American Indian or Alaskan Native, and other. Participants were able to respond to any of the answer choices. For the currents study, races is a binary categorical variable with all minority races combined and compared to white-not Hispanic.

Living Arrangement

Participants were asked: "Where do you currently live?" The response options were: campus residence hall, other university/college housing, fraternity/sorority house, off-campus housing, parents/guardian's house, and other. Participants were able to select one option. Living Arrangement is a nominal level of measurement.

Sexual Orientation

Participants were asked: "Which of the following best describes you?" The responses were: heterosexual, gay/ lesbian, bisexual, transgendered, and unsure. The participants were able to select one option. Sexual orientation is a categorical variable with five different categories.

Fraternity/ Sorority Membership

Participants were asked: "Are you a member of a social fraternity or sorority?" (National Interfraternity Conference, National Panhellenic Conference, or National Pan-Hellenic Council) The responses were: yes or no.

When selecting independent variables for this study, it was important to focus on findings in the published literature. There has been extensive research in STDs as it relates to age, sex, and race. It is imperative to explore variables that have not previously been examined as

frequently as others have. The variables that were examined to help add to the present literature were sexual orientation, living arrangement, and Greek membership.

Dependent Variables

The three dependent variables were derived from ACHA-NCHA questions regarding various sexual behaviors. The three dependent variables in this research are: 1) differences in perceived versus actual *Number of Partners* in the past 12 months, 2) differences in perceived versus actual *Sexual Activity* in the past 30 days, and 3) differences in perceived versus actual *Condom Usage* in the past 30 days. The italicized names for these variables will be used throughout the remainder of this thesis. The phrases "perceived norms behavior" and the "behavior of the typical college student" will be used interchangeably.

The *Number of Partners* variable were computed as the difference between the perceived number of sexual partners of a typical student in the last school year and the number of actual sexual partners in the last school year. The two questions that were used for this variable were: 1) Within the last school year, with how many partners, if any have you had sex (oral, vaginal, or anal)? and 2) Within the last school year, with how many partners do you think the typical student at your school has had sex (oral, vaginal, or anal)? For each question, participants were able to fill in the value for the number of partners they had sex with or their peers may have had sex. The responses for the variables were copied and renamed perceived number of partners and actual number of partners. Then any missing values were identified and replaced by the mean of each variable. The *Number of Partners* was computed as the difference between PerPartners and ActPartners. The computed responses could be positive or negative numbers. A positive number indicates that participants perceived their peers to report more sexual partners than they do

themselves and a negative number indicates that participants perceived their peers to report fewer partners than they do themselves.

Sexual Activity of students was computed as the difference between perceived and actual sexual activity. The six questions that were used to create this variable include three regarding the participant's behavior and three regarding the participant's perception of peer behavior: 1) Within the last 30 days, if you are sexually active, how many times did you have: oral sex, vaginal intercourse, or anal intercourse? and 2) How many times within the last 30 days do you think the typical student at your school has had: oral sex, vaginal intercourse, or anal intercourse? The responses for actual student sexual activity in the last 30 days were: never did this sexual activity, have not done in the last 30 days, 1-2 times, 3-4 times, 5-6 times, 7-8 times, 9-10 times, and 11 or more times. The responses for perceived sexual activity in the last 30 days were: 0 times, 1-2 times, 3-4 times, 5-6 times, 7-8 times, 9-10 times, and 11 or more times. The means of each variable were calculated and used to replace any missing values. The new variables for actual and perceived sexual activity were: ActOralSex, ActVagSex, ActAnalSex, PerOralSex, PerVagSex, and PerAnalSex. The responses "never did this sexual activity" and "have not done in the last 30 days" for actual student behavior were combined to be equivalent to the responses for typical student behavior. Actual sexual activities were computed by adding ActOralSex, ActVagSex, and ActAnalSex to create the variable TotalActSex. Perceived sexual activities were computed by adding PerOralSex, PerVagSex, and PerAnalSex to create the variable TotalPerSex. *Sexual Activity* was computed as the difference between TotalPerSex and TotalActSex .

Condom Usage was computed as the difference between perceived sexual activity and actual sexual behavior. The six questions that were used to create this variable were: 1) Within

the last 30 days, if you are sexually active, how often did you or your partner(s) use a condom during: oral sex, vaginal intercourse, or anal intercourse? and 2) The responses for the actual condom usage question were: never did this sexual activity, have not done in the last 30 days, never, rarely, sometimes, mostly, and always. The responses for the typical student were: the typical student does not participate in this activity, never, rarely, sometimes, mostly, and always. The responses "never did this sexual activity" and "have not done in the last 30 days" for actual student behavior were combined to be equivalent to the responses for typical student behavior.

There were three variables for both actual and perceived condom usage for three categories of sexual behavior: oral sex, vaginal intercourse and anal intercourse. The means of each variable were calculated and used to replace any missing values. The new variables for perceived and actual condom usage were: PerConOral, PerConVag, PerConAnal, ActConOral, ActConVag, and ActConAnal. PerConOral, PerConVag, and PerConAnal were summed to create the variable TotalConPer. ActConOral, ActConVag, and ActConAnal were summed to create the variable TotalConAct. *Condom Usage* was computed as the difference between TotalConPer and TotalConAct.

Analyses

Frequency analyses were used to assess variable distributions. Three separate one-way ANOVAs with Bonferroni post-hoc comparison were used to determine statistical differences among the dependent variables for age, living arrangements, and sexual orientation. Bonferroni post hoc was used to help compare independent variables, which have more than two groups or responses. Three one-way ANOVAs were conducted to compare differences between: sex, race,

and fraternity/sorority membership and the three dependent variables. A two-tailed test with an alpha level of .05 a priori was used for all analyses.

Hypotheses

Null Hypotheses

Ho1: There will not be a difference between age and the normative gap of *Number of Partners*.

Ho2: There will not be a difference between sex and the normative gap of *Number of Partners*.

Ho3: There will not be a difference between race and the normative gap of *Number of Partners*.

Ho4: There will not be a difference between living arrangement and the normative gap of *Number of Partners*.

Ho5: There will not be a difference between sexual orientation and the normative gap of *Number of Partners*.

Ho6: There will not be a difference between fraternity/sorority membership and the normative gap of *Number of Partners.*

Ho7: There will not be a difference between age and the normative gap of *Sexual Activity*.

Ho8: There will not be a difference between sex and the normative gap of *Sexual Activity*.

Ho9: There will not be a difference between race and the normative gap of *Sexual Activity*.

Ho10: There will not be a difference between living arrangement and the normative gap of *Sexual Activity.*

Ho11: There will not be a difference between sexual orientation and the normative gap of *Sexual Activity*.

Ho12: There will not be a difference between fraternity/sorority membership and the normative gap of *Sexual Activity.*

Ho13: There will not be a difference between age and the normative gap of *Condom Usage.*

Ho14: There will not be a difference between sex and the normative gap of *Condom Usage.*

Ho15: There will not be a difference between race and the normative gap of *Condom Usage.*

Ho16: There will not be a difference between living arrangement and the normative gap of *Condom Usage.*

Ho17: There will not be a difference between sexual orientation and the normative gap of *Condom Usage.*

Ho18: There will not be a difference between fraternity/sorority membership and the normative gap of *Condom Usage.*

Alternative Hypotheses

Ha1: There will be a difference between age and the normative gap of *Number of Partners.*

Ha2: There will be a difference between sex and the normative gap of *Number of Partners.*

Ha3: There will be a difference between race and the normative gap of *Number of Partners.*

Ha4: There will be a difference between living arrangement and the normative gap of *Number of Partners.*

Ha5: There will be a difference between sexual orientation and the normative gap of *Number of Partners.*

Ha6: There will be a difference between fraternity/sorority membership and the normative gap of *Number of Partners.*

Ha7: There will be a difference between age and the normative gap of *Sexual Activity.*

Ha8: There will be a difference between sex and the normative gap of *Sexual Activity.*

Ho9: There will be a difference between race and the normative gap of *Sexual Activity.*

Ha10: There will be a difference between living arrangement and the normative gap of *Sexual Activity.*

Ha11: There will be a difference between sexual orientation and the normative gap of *Sexual Activity.*

Ha12: There will be a difference between fraternity/sorority membership and the normative gap of *Sexual Activity.*

Ha13: There will be a difference between age and the normative gap of *Condom Usage.*

Ha14: There will be a difference between sex and the normative gap of *Condom Usage.*

Ha15: There will be a difference between race and the normative gap of *Condom Usage.*

Ha16: There will be a difference between living arrangement and the normative gap of *Condom Usage.*

Ha17: There will be a difference between sexual orientation and the normative gap of *Condom Usage.*

Ha18: There will be a difference between fraternity/sorority membership and the normative gap of *Condom Usage.*

Table 1 below displays the dependent and independent variables. The first column of the table represents the variable names, the second column represents the question asked pertaining to the specific variable on the ACHA-NCHA, and the third column represents how the variable were recoded for the study.

Table 1. INDEPENDENT AND DEPENDENT VARIABLES FOR STUDY

Variable	ACHA-NCHA Question	Recoded Variable in Analysis
Age	How old are you?	Only ages 18-24 will be included. All other ages will be excluded.
Sex	What is your sex? Female Male	Female=1 Male=2
Race	How would you describe yourself? White-Not Hispanic (includes Middle Eastern) Black-not Hispanic Hispanic or Latino Asian or Pacific Islander American Indian or Alaskan Native Other	White=1 Minority races=2
Living Arrangement	Where do you currently live? Campus residence hall Fraternity or sorority house Other university/college housing Off-campus housing Parent/ guardian's home Other	No change

Sexual Orientation	Which of the following best describes you? Heterosexual Bisexual Gay/Lesbian Transgendered Unsure	No change
Greek Affiliation	Are you a member of a social fraternity or sorority? Yes No	No change
Number of Partners	Within the last school year, with how many partners, if any, have you had: oral sex? vaginal intercourse? anal intercourse? Participants were able to fill in a number Within the last school year, with how many partners do you think the typical student at your school has had: oral sex? vaginal intercourse? anal intercourse? Participants were able to fill in a number	Self reported number of partners= actual number of partners Typical student number of partners= perceived number of partners Perceived number of partners-actual number of partners= *Number of Sexual Partners*
Sexual Activity	Within the last 30 days, if you are sexually active, how many times did you have: oral sex? vaginal intercourse? anal intercourse? Never did this sexual activity Have not done this during last 30 days 1-2 times 3-4 times 5-6 times 7-8 times 9-10 times 11 or more times How many times within the last 30 days do you think the typical	"Never did this sexual activity" and "Have not during the last 30 days" will be combined to be numerically consistent with perceived behavior. Self reported oral sex+ self reported vaginal intercourse+ self reported anal intercourse= actual sexual activity Typical student oral sex+ typical student vaginal sex+ typical student anal intercourse= perceived sexual activity Total Perceived Sex-Total Actual Sex=*Sexual Activity*

	student at our school has had: oral sex? vaginal intercourse? anal intercourse? 0 times 7-8 times 1-2 times 9-10 times 3-4 times 11 or more times 5-6 times	
Condom Usage	Within the last 30 days, how often do you think the typical student at your school has used a condom: oral sex? vaginal intercourse? anal intercourse? Never did this sexual activity Have not done this during last 30 days Never Rarely Sometimes Mostly Always Within the last 30 days, how often do you think the typical student at your school has used a condom during: oral sex? vaginal intercourse? anal intercourse? The typical student at my school does not participate in this sexual activity Never Rarely Sometimes Mostly Always	"Never did this sexual activity" and "Have not done in the last 30 days" will be combined to be numerically consisted with perceived behavior. Actual oral sex+ actual vaginal sex+ actual anal sex= actual 30 day condom usage Perceived oral sex+ perceived vaginal sex+ perceived anal sex=perceived 30 day condom usage Perceived condom usage-actual condom usage=*Condom Usage*

CHAPTER IV

RESULTS

This section will describe the results from the analyses used to test each of the hypotheses and measure the association between the variables of interest. The final sample consisted of 60,050 participants between the age of 18 to 24, with the mean age of 20.20 years (SD±1.55). The sample was 65.3% female and 34.7% male. Also, 94.5% of the participants identified as being heterosexual and 11.2% reported being member of a sorority or fraternity. (See Table 2 for demographic characteristics of the study sample). The following sections outline results of analyses examining the relationship between selected independent and dependent variables organized in the following order: Number of partners, Sexual Activity, Condom Usage.

Age

Participants who were 18 year olds had the largest normative gap for *Number of Partners, Condom Usage*, and *Sexual Activity* (1.93, 5.0, and 2.4, respectively) when compared to all other age groups. Participants, who were 22 years old, had the smallest normative gap for *Number of Partners, Condom Usage,* and *Sexual Activity* of 1.60, 3.9, and 1.25 respectively, when compared to all other age groups.

Number of Partners: The one- way, between subjects analyses of variance revealed an effect on Number of Partners and age, [F (6,65029)=6.098, $p < 0.001$]. When comparing group mean differences, 18 years old, had a significant difference with individuals who were 20 year

olds ($p< 0.001$), 21 years olds ($p< 0.001$), and 22 year olds ($p< 0.001$). Individuals who were 19 year old, had a significant group mean difference between individuals who were 23 year old ($p =0.002$). There were no other significant mean differences among any other age groups. Further results can be seen in Table 3.

Condom Usage: The one- way, between subjects analyses revealed an effect on *Condom Usage* and age [F (6, 65029) = 74.547, $p < 0.001$]. Eighteen year olds had a significant group mean difference among those who were 19, 20, 21, 22, 23, and 24 year olds ($p < 0.001$). Those who were 19 years old had a significant group mean difference among 20, 21, 22, 23, and 24 year olds of $p <0.001$. Twenty year olds had a significant difference from 21 and 22 year olds of $p < 0.001$. Further analyses can be seen in Table 4.

Sexual Activity: The one-way, between subjects analyses of variance revealed an effect on *Sexual Activity* and age [F (6, 65029) = 61.879, $p <0.001$)]. There was a significant group mean difference among 18 year olds when compared to 20 year olds, 21 year olds, 22 year olds, 23 year olds, and 24 year olds of ($p <0.001$). Nineteen year olds had a significant group mean differences among 20 year olds, 21 year olds, and 22 years olds of ($p <0.001$). Twenty year olds had a significant group mean differences between 20 year olds ($p =.002$) and 22 year olds ($p < 0.001$). Twenty-one year olds had a significant group differences among 23 year olds ($p = 0.042$) and 24 year olds ($p = 0.011$). Twenty-two year olds had a significant group differences between 23 year olds and 24 year olds ($p < 0.001$). Further results can be seen in Table 5.

Sexual Orientation

When considering sexual orientation, heterosexuals had the largest normative gap for *Number of Partners* of 1.76 and gays/lesbians had the smallest gap of .75. Gay/lesbian

participants had the largest normative gap for *Condom Usage* of 5.6 and bisexual participants had the smallest normative gap of 4.10. Bisexual participants also had the lowest normative gap for *Sexual Activity* of 1.3, whereas transgendered participants had the largest normative gap of 2.9.

Number of Partners: The one-way between subjects analyses of variance revealed an effect on *Number of Partners* and sexual orientation of [F (4, 64618) = 28.267, $p < 0.001$]. Heterosexuals had a significant group mean difference between those who were gay/lesbian and bisexual of $p < 0.001$. Those who were bisexual had a significant mean difference from those who were unsure of their sexual orientation p =0.001. Further results can be seen in Table 6.

Condom Usage: The one-way between analysis of variance revealed an effect on *Condom Usage* and sexual orientation [F (4, 64618) = 27.889, $p < 0.001$]. Heterosexual participants had a significant mean difference between gay/lesbian and those who were unsure of their sexual orientation $p <0.001$. Gay/ lesbian participants had a significant difference from bisexuals of $p <0.001$. Bisexuals had a significant group difference from those who were unsure of their sexual orientation $p <0.001$. Transgendered participants did not have a significant mean group difference with any sexual orientation group. Further results can be seen in Table 7.

Sexual Activity: The one-way between subjects analyses of variance revealed an effect on *Sexual Activity* and sexual orientation of [F (4, 64618) = 27.889, $p <0.001$]. Heterosexual and gay/lesbian participants had significant mean differences with bisexual participants ($p= 0.001$ and $p <0.001$, respectively). Bisexual participants had a significant difference from those who were unsure of their sexual orientation. Transgendered participants did not have significant differences between any sexual orientation groups. Further results can be seen in Table 8.

Living Arrangement

Participants who lived with their parents, had the largest normative gap pertaining to *Number of Partners* (2.3) and those who lived in a fraternity or sorority house had the lowest normative gap (1.4). Those who lived in a fraternity or sorority house also had the lowest normative gap for *Condom Usage* and *Sexual Activity*, 3.4 and 0.50 respectively. The largest normative gap for *Condom Usage* was those who lived in the residence hall (4.9) and for *Sexual Activity* those who lived with parents (3.0) when compared to all other living arrangements.

Number of Partners: The one-way between subjects analyses of variance revealed an effect on *Number of Partners* and living arrangement [F (5, 64855) = 33.185, $p < 0.001$]. Those who resided in the residence hall and off campus had significant difference with those who resided with their parents ($p < 0.001$). Those who resided in a fraternity/sorority house only had a significant difference with those who resided with parents ($p < 0.001$) and those who resided in an "other" living arrangement ($p = 0.009$). Those who lived in other university housing and those who resided off campus had a significance mean difference those participants who with parents ($p < 0.001$). Further results can be viewed in Table 9.

Condom Usage: The one-way between subjects analysis of variance revealed an effect on *Condom Usage* and living arrangement [F (5, 64855) = 223.757, $p < 0.001$]. Those who resided in residence halls had a significant group difference with those who resided in fraternity/sorority housing, other university housing, off campus, and other living arrangement ($p < 0.001$). Those who resided in fraternity/sorority housing had a significant difference between those who lived in other university housing ($p < 0.001$), those who lived with parents ($p < 0.001$) and those who resided in "other" living arrangements ($p = 0.026$). Those who resided in other university housing had a significant difference between those who resided in off campus housing and with

parents of ($p < 0.001$). Those who resided in off campus housing had a significant mean difference from those who resided with parents ($p < 0.001$) and those who resided with parents had a significant difference from those who live in "other" living arrangements. Further results can be seen in Table 10.

Sexual Activity: The one-way between subjects analyses of variance revealed an effect on *Sexual Activity* and living arrangement [F (5, 64855) = 169.442, $p < 0.001$]. Those who resided in the residence hall had a significant mean group difference among those who resided in fraternity/ sorority housing ($p < 0.001$), other university housing ($p = 0.011$), off campus ($p < 0.001$), and with parents ($p < 0.001$). Fraternity/sorority housing participants had a significant mean difference from other university housing, off campus, with parents, and other living arrangement of ($p < 0.001$). Those who resided in other university housing had a significant difference with those who resided off campus ($p< 0.001$) and those who resided with parents ($p <0.001$). Off campus residence had a significant difference with those who resided with parents ($p < 0.001$) and those who lived with parents had a significant difference with those who resided in "other" living arrangements ($p < 0.001$). Further results can be seen in Table 11.

Race

White participants had the smallest normative gap and other race participants had the largest normative gap pertaining to *Number of Partners* (1.65 and 2.1), *Condom Usage* (4.2 and 4.9), and *Sexual Activity (*1.5 and 2.7). The one- way between subjects analyses revealed an effect for *Number of Partners* [F (1, 65034) = 158.230, $p <0.001$], *Condom Usage* [F (1, 65034) = 324.387, $p <0.001$], *Sexual Activity* [F (1, 65034) = 600.989, $p <0.001$] and race.

Sex

Female participants had the largest normative gap and males had the smallest normative gap for *Number of Partners* (1.9 and 1.2,), *Condom Usage* (4.4 and 4.15), and *Sexual Activity* (2.1 and 1.1). The one-way between subjects analyses of variance revealed an effect on *Number of Partners* [F (1, 64529) = 380.342, p <0.001], *Condom Usage* [F (1, 64529) = 53.187, p < 0.001], *Sexual Activity* [F (1, 64529) = 600.989, p < 0.001] and sex.

Fraternity/Sorority Membership

Those who were not members of a fraternity/sorority had the largest normative gap and those who were members of a sorority/fraternity member for *Number of Partners* (1.8 and 1.4), *Condom Usage* (4.4 and 3.6) and *Sexual Activity* (1.8 and 1.0). The one-way between subjects analyses of *Number of Partners* [F (1, 64573) = 45.543, p < 0.001], *Condom Usage* [F (1, 64573) = 221.905, p < 0.001], *Sexual Activity* [F (1, 64573) = 203.723, p < 0.001] and fraternity/ sorority membership.

Table 2 displays the final demographic variables for the total population (N= 60,050). The total numbers of participants in this study are based on the number of participants that responded to the specific questions pertaining to *Number of Partners*, *Sexual Activity*, and *Condom Usage* for this study. Not all participants responded to all demographic variables which accounts for the varying number of participants for each category.

TABLE 2. DEMOGRAPHICS OF SAMPLE POPULATION (N=60,050)

Student Demographics	n	%
Age (Mean=20.20 SD=1.55)	65050	
18	9200	14.2
19	15511	23.8
20	14249	21.9
21	12797	19.7
22	7947	12.2
23	3269	5.0
24	2077	3.2
Sex	**64531**	
Male	22378	34.7
Female	42153	65.3
Race	**65036**	
White-not Hispanic	50574	77.8
Minority Races	14462	22.2
Current Living Arrangement	**64861**	
Residence Hall	29431	45.4
Fraternity/Sorority House	1627	2.5
Other University Housing	4060	6.3
Off Campus	21172	32.6
With Parents	7490	11.5
Other	1081	1.7
Sexual Orientation	**64623**	
Heterosexual	61061	94.5
Bisexual	1458	1.8
Gay/Lesbian	1160	2.2
Transgendered	55	.1
Unsure	889	1.4
Greek Affiliation	**64589**	
Sorority/Fraternity Membership	7651	11.8
Not member of Sorority/Fraternity	56983	88.2

*Note: Values differ based on demographic data completed by participants. Overall number of participants based on those who completed questions pertaining to research. Not all participants completed demographic information.

The ANOVAs that were conducted identified the differences between groups, however they failed to identify which specific groups had significant differences. The post hoc tests conducted identified specific differences among groups. The following tables display the post hoc comparisons, which were made for these analyses. Each table consists of one dependent variable and one independent variable. All null hypotheses were rejected for the study.

TABLE 3.THE NORMATIVE GAP OF MEAN GROUP DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR NUMBER OF PARTNERS AND AGE

Age	18	19	20	21	22	23
18	-	-	-	-	-	-
19	.10 (.06) º1.00	-	-	-	-	-
20	.25* (.06) ºp< 0.001	.15 (.05) º0.65	-	-	-	-
21	.22* (.06) ºp< 0.001	.12 (.05) º0.349	-.02 (.05) º1.00	-	-	-
22	.33* (.07) ºp< 0.001	.23* (.06) º0.002	.08 (.06) º1.00	.11 (.06) º1.00	-	-
23	.18 (.09) º0.860	.08 (.08) º1.00	.07 (.08) º1.00	-.05 (.08) º1.00	.15 (.09) º1.00	-
24	.17 (.10) º1.00	.07 (.10) º1.00	.08 (.10) º1.00	-.06 (.10) º1.00	-.01 (.12) º1.00	-.01 (.12) º1.00

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot º represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 4. THE NORMATIVE GAP OF GROUP MEAN DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR CONDOM USAGE AND AGE

Age	18	19	20	21	22	23
18	-	-	-	-	-	-
19	-.29*(06) ºp< 0.001	-	-	-	-	-
20	.41* (.05) ºp< 0.001	.41* (.05) ºp< 0.001	-	-	-	-
21	.69* (.06) ºp< 0.001	.69* (.06) ºp< 0.001	.28* (.06) ºp< 0.001	-	-	-
22	.84*(.06) ºp< 0.001	.84* (.06) ºp< 0.001	.43* (.06) ºp< 0.001	.15 (.07) 0.559	-	-
23	.67* (.09) ºp< 0.001	.67*(.09) ºp< 0.001	.26 (.09) º0.072	-.02 (.09) º1.00	-.17 (.10) º1.00	-
24	.62*(.11) ºp< 0.001	.62*(.11) ºp< 0.001	.20 (.11) º1.00	-.08 (.11) º1.00	-.23 (.11) º1.00	-.06 (.13) º1.00

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot º represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 5. THE NORMATIVE GAP OF MEAN GROUP DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR SEXUAL ACTIVITY AND AGE

Age	18	19	20	21	22	23
18	-	-	-	-	-	-
19	.32* (.06) ºp< 0.001	-	-	-	-	-
20	.74* (.07) ºp< 0.001	.42* (.06) ºp< 0.001	-	-	-	-
21	.98* (.07) ºp< 0.001	.65* (.06) ºp< 0.001	.23* (.06) º0.002	-	-	-
22	1.13* (.07) ºp< 0.001	.80* (.07) ºp< 0.001	.38* (.07) ºp< 0.001	.15 (.07) º0.644	-	-
23	.68* (.10) ºp< 0.001	.36* (.09) ºp< 0.001	-.06 (.09) º1.00	-.29* (.10) º0.042	-.44* (.10) ºp< 0.001	-
24	.58* (.12) ºp< 0.001	.25 (.11) º0.548	-.17 (.11) º1.00	-.40* (.12) º0.011	-.55* (.12) ºp< 0.001	-.11 (.14) º1.00

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot º represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 6. THE NORMATIVE GAP OF MEAN GROUP DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR NUMBER OF PARTNERS AND SEXUAL ORIENTATION

Sexual Orientation	Heterosexual	Gay/Lesbian	Bisexual	Transgendered
Heterosexual	-	-	-	-
Gay/Lesbian	1.02* (.13) ºp< 0.001	-	-	-
Bisexual	.80* (.11) ºp< 0.001	-.21 (.17) º1.00	-	-
Transgendered	.20 (.58) º1.00	-.82 (.59) º1.00	-.61 (.59) º1.00	-
Unsure	.08 (.14) º1.00	-.94* (.19) ºp< 0.001	-.73* (.18) º 0.001	-.12 (.59) º1.00

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot º represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 7.THE NORMATIVE GAP OF MEAN GROUP DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR CONDOM USAGE AND SEXUAL ORIENTATION

Sexual Orientation	Heterosexual	Gay/Lesbian	Bisexual	Transgendered
Heterosexual	-	-	-	-
Gay/Lesbian	-1.29* (.14) $^{o}p< 0.001$	-	-	-
Bisexual	.22 (.12) ^{o} 0.757	1.51* (.18) $^{o}p<0.001$	-	-
Transgendered	.12 (.63) $^{o}1.00$	1.41 (.64) $^{o}0.278$	-.10 (.64) $^{o}1.00$	-
Unsure	-.72*(.17) $^{o}p< 0.001$	.57 (.21) 0.059	-.94* (.20) $^{o}p< 0.001$	-.84 (.64) $^{o}1.00$

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot ^{o} represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 8.THE NORMATIVE GAP OF GROUP MEAN DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR SEXUAL ACTIVITY AND SEXUAL ORIENTATION.

Sexual Orientation	Heterosexual	Gay/Lesbian	Bisexual	Transgendered
Heterosexual	-	-	-	-
Gay/Lesbian	-.33 (.15) º0.245	-	-	-
Bisexual	.50*(.13) º0.001	.83* (.19) ºp< 0.001	-	-
Transgendered	-1.22(.66) º0.635	-.90 (.67) º1.00	-1.72 (.67) º0.103	-
Unsure	-.36 (.17) º0.316	-.03 (.22) º1.00	-.85 (.20) ºp< 0.001	.87 (.66) º1.00

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot º represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 9. THE NORMATIVE GAP OF GROUP MEAN DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR NUMBER OF PARTNERS AND LIVING ARRANGEMENT

Living Arrangement	Residence Hall	Frat/Sorority Housing	Other Univ. Housing	Off Campus	With Parents
Residence Hall	-	-	-	-	-
Frat/Sorority Housing	-.24 (.11) º0.429	-	-	-	-
Other Univ. Housing	-.08 (.07) º1.00	-.16 (.13) º1.00	-	-	-
Off Campus	-.02 (.04) º1.00	-.22 (.11) º0.687	-.06 (.07) º1.00	-	-
With Parents	-.63* (.06) ºp< 0.001	-.87* (.12) ºp< 0.001	-.71* (.08) ºp< 0.001	.65* (.06) ºp< 0.001	-
Other	-.34 (.13) º0.154	-.58*(.17) º0.009	-.42 (.15) º0.063	-.36 (.13) º0.108	-.30 (.14) º 0.495

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot º represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 10. THE NORAMTIVE GAP OF GROUP MEAN DIFFERENCES, STANDARD DEVIATION OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOR CONDOM USAGE AND LIVIGING ARRANGEMENT

Living Arrangement	Residence Hall	Frat/Sorority Housing	Other Univ. Housing	Off Campus	With Parents
Residence Hall	-	-	-	-	-
Frat/Sorority Housing	1.52* (.11) $^{o}p< 0.001$	-	-	-	-
Other Univ. Housing	.59* (.08) $^{o}p< 0.001$	-.93* (.14) $^{o}p< 0.001$	-	-	-
Off Campus	1.29* (.04) $^{o}p< 0.001$	-.23 (.12) $^{o}0.797$	.70* (.08) $^{o}p< 0.001$	-	-
With Parents	.10 (.06) $^{o}1.00$	-1.42* (.13) $^{o}p< 0.001$	-.49* (.09) $^{o}p< 0.001$	-1.19* (.06) $^{o}p< 0.001$	-
Other	.95* (.14) $^{o}p< 0.001$	-.57* (.18) $^{o}0.026$	.37 (.16) $^{o}0.301$	-.34 (.14) $^{o}0.286$	.85* (.15) $^{o}p< 0.001$

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot ^{o} represents the significance of the difference when using ANOVA and Bonferroni post hoc.

TABLE 11. THE NORMATIVE GAP OF GROUP MEAN DIFFERENCES, STANDARD DEVIATIONS OF GROUP MEAN DIFFERENCES, AND SIGNIFICANCE OF GROUP MEAN DIFFERENCES FOF SEXUAL ACTIVITY AND LIVING ARRANGEMENT

Living Arrangement	Residence Hall	Frat/Sorority Housing	Other Univ. Housing	Off Campus	With Parents
Residence Hall	-	-	-	-	-
Frat/Sorority Housing	1.39* (.12) $^{o}p< 0.001$	-	-	-	-
Other Univ. Housing	.28* (.08) $^{o}0.011$	-1.11* (.14) $^{o}p< 0.001$	-	-	-
Off Campus	.64* (.04) $^{o}p< 0.001$	-.75* (.12) $^{o}p< 0.001$	.36* (.08) $^{o}p< 0.001$	-	-
With Parents	-1.10* (.06) $^{o}p< 0.001$	-2.49* (.13) $^{o}p< 0.001$	-1.37* (.09) $^{o}p< 0.001$	-1.73* (.07) $^{o}p< 0.001$	-
Other	.38 (.15) $^{o}0.179$	-1.01 (.19) $^{o}p< 0.001$	.10 (.17) $^{o}1.00$	-.26 (.15) $^{o}1.00$	1.47* (.16) $^{o}p< 0.001$

Note: The first number in each column represents the mean differences between groups. The asterisk * by the value indicates the difference is statistically significant given the ANOVA and Bonferroni post hoc comparison. The parentheses (#) represent the Standard Error of the difference between the two group means. The Dot ^{o} represents the significance of the difference when using ANOVA and Bonferroni post hoc.

CHAPTER V

DISCUSSION

The purpose of this study was to examine the normative gaps between college students' actual sexual behaviors and their perceptions of these behaviors among their peers. College administrators are becoming increasingly concerned about high-risk sexual behavior on campus, and many are trying to formulate appropriate programs to prevent the potential negative ramifications. College health educators and administrators, however, often have limited information regarding strategies to identify and ultimately reduce the rates of high-risk sexual behavior on their campuses (Scholly et. al, 2005). Identifying and examining normative gaps of each demographic variable provides a tool that could help identify which demographic group may be at a higher risk for misperceptions. It is important to note that each dependent variable is a collective normative gap of male and female participant's behaviors compared to their beliefs regarding actions of peers.

Key findings emerged from this study. First, results indicated that students had extensive misperceptions of social norms for the dependent variables of Number of Partners, Sexual Activity, and Condom Usage and all independent variables: age, sexual orientation, living arrangement, sex, race, fraternity/sorority membership. Social norm research suggests that these misperceptions may play an influential role in shaping sexual risk behaviors among college students and place compliance pressure on the respondent (Adams and Rust, 2006). Results for this study that had statistical and practical significance were found specifically among: minority races, women, and those who are not members of a fraternity or sorority. These findings are

consistent with prior research that has found that there is a tendency to overestimate peer norms exist regardless of gender, ethnic group, residential housing type, and fraternity/ sorority membership (Martens et. al, 2006).

Past literature has typically focused on white versus black students when comparing similarities or differences in sexual behavior. For example, Buhi et. al,(2010), found that relative to their white counterparts, black students reported higher condom use for oral, anal, and vaginal sex. They also reported more sexual partners. The results for this study found that minority races had a larger normative gap for *Number of Partners*, *Condom Usage*, and *Sexual Activity* relative to their white counterparts. This finding could be related to the main- stream, media more specifically music videos and the Internet. The mass media are an increasingly accessible way for people to learn about and see sexual behavior. The Internet has increased dramatically the availability of sexually explicit content (Hill, 2002). Hip hop, rhythm & blues, and Latin music typically display music videos which are sexually suggestive. The dances that typically accompany said music is typically sexually provocative and suggestive. Arnett, who explained, "A typical music video…features one or more men performing while beautiful, scantily clad young women dance and writhe lasciviously. Often the men dance, too, but the women always have fewer clothes on. The women are mostly just props.… They appear for a fraction of a second, long enough to shake their butts a couple of times, then the camera moves on" (Arnett, 2002 pg. 256)." Although these videos can be viewed by anyone, typically the artists and the dancers are minorities. These videos as well as lyrics, may possibly lead one to believe that minorities are more sexually active than other races due to the suggestive nature of lyrics and videos. Considering the results for this study, it is important to focus on the reasons why there is a distorted view of sexual behaviors based on racial identity. More research is

needed to explore the differences between individuals of different racial groups to help understand underlying issues that are the reason for actual reported behavior and the perception of these behaviors.

Results found normative gaps between actual and perceived condom usage. It is important to note that although there was a normative gap between actual and perceived condom usage, both had high averages of condom use. The largest average of perceived condom usage was 5.60 and the lowest was 3.40, which suggest a positive rather than a negative connotation. The results from this data suggest participants are using condoms and also have a favorable perception about condom usage by their peers, which could mean participants believe peers are safe in their sexual activity. The normative gap found for women with all three dependent variables could be attributed to the rise in sexual consciousness in women. Advertisements for hormonal contraceptives can be seen on television, in magazines, and on billboards. This would lead one to believe that women are in need of hormonal contraceptives due to the perception that sexual activity is normative. This perception could suggest the enhanced need for contraceptive is to protect women due to the perception of a high prevalence of sexual activity. The normative gaps found within this study suggest that men and women believe that women are more sexually active, have more sexual partners, and use more protection. There is a need for additional research into this specific topic to better understand differences that may exist between men and women. Qualitative studies in particular might aid in an improved conceptualization of normative beliefs regarding sexual behavior among young men and women.

Participants who were not members of a fraternity/sorority had the largest normative gap for *Number of Partners, Sexual Activity,* and *Condom Usage.* There is contradicting literature pertaining to Greek affiliation. Some studies find that, Greeks are more likely to participate in

riskier behaviors such as drinking and driving and in sexual activity. For example, Sheldon and colleagues (2008) found that Greek members reported more sexual partners in their lifetime and in the last three months relative to non-Greeks students. Greeks also had a higher frequency of sexual activity even though their reported condom use was similar to that of non-Greeks (Sheldon, Carey, & Carey, 2008). Conversely, Eberhardt and colleagues (2003) found that both Greeks and non-Greeks engaged in similar amounts of risky sexual behaviors. Additionally, Chng and Moore (1994), found that all groups of students (whether Greek or non-Greek) were comparable in their neglect of safe sex behaviors. A possible rationale for the inconsistency in research findings on this topic could pertain to the types of questions being asked about perception. Some survey respondents may consider a "typical" college student as someone who is in a fraternity or sorority. Greek students are often stereotypically viewed as a specialized group where membership is contingent upon selection and approval by current members. When posed with a survey question about perceptions regarding the typical college student's sexual behaviors, the reference points being considered by participants are unknown.

Limitations

First, all data were self-reported, which may be subject to recall and social desirability biases. It is possible that respondents answered questions in a way to be deemed favorable and may not have been entirely truthful. However, participant's responses were anonymous and no identifying markers were attached to their responses. Also, the ACHA-NCHA has been demonstrated to be both valid and reliable for several years. It is also important to consider who participants were using as a reference point when questions referred the typical student. In their research, Agostinelli and Seal (1996) found that students rated their own attitudes as less sexually permissive and more sexually responsible than those of both their close friends

and the typical college student, respectively. However, participants' attitudes for their close friends' behavior was less than that of the typical student. It is significant to note interpretation of the phrase "typical student" could have affected the way participants understood and responded to the question. The findings cannot be generalized to all institutions of higher learning due to data being collected on a national level; however, institutions could examine their individual school's results to identify the need of their particular student population. Moreover, data is not distinguished between type of institutions such as whether schools were two year versus four years institutions. Analyses could have compared public versus private institutions, and historically black college/university to other institution types. However, the researcher was unable to categorize institutions based on two year institute versus four year institute. Lastly, institutions that to selected have their student body to complete the NCHA could differ from institutions that chose not to participate. If an institution perceived there is an underlying issue within their student population pertaining to sexual encounters, this institution may be more likely to participate with the ACHA-NCHA to further understand their student populations' beliefs, values and behaviors regarding sexual encounters.

Recommendations

It is recommended that individual campuses examine their individual institution's results and compare them to the national data. This would allow institutions to determine discrepancies that may exist due to: region, institution type, institution size, and number of students. Although, social norms theory has mainly been used for alcohol use behaviors, results of the current study show normative misperceptions for all sexual behaviors are similar to results found for alcohol misuse. Social norms interventions focus on peer influences, which have a greater impact on individual behavior than biological, personality, familial, religious, cultural and other influences

(Berkowitz & Perkins, 1986). Social norms theory could help improve the effectiveness of sexual education programs and should be employed for the general student population as well as for identified high-risk sub groups. It is important to examine both the overall misperception (absolute) and the extent to which these are influenced by actual behavior (relative). It could be beneficial for participants to have pamphlets or hand outs that showed actual and perceived sexual behaviors. Also, using the media as a way to help dispel the perception of overly sexually active students could be advantageous. Media campaign could include: facebook page, twitter page, a blog, print ads, and television commercials all aimed at correcting perceptions of peer sexual behavior, especially since the premise of social norms is that personal behavior is based on perceptions of actions of others.

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